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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/622,889 | 07/17/2003 | Xueying Huang | CL1941 US NA | 2771 |

23906 7590 02/16/2006

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WILMINGTON, DE 19805

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| EXAMINER |
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TSOY, ELENA

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| ART UNIT | PAPER NUMBER |
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1762

DATE MAILED: 02/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/622,889

Applicant(s)

HUANG ET AL.

Examiner

Elena Tsoy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 8, 9, 19-28 and 30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 10-18 and 29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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Election/Restrictions

1. Applicant's election without traverse of Group I, Claims 1-18, 29 and the species of metal nanoparticles (Claims 5-7) in the reply filed on 1/25/2006 is acknowledged.

Claims 1-30 are pending in the application. Claims 8, 9, 19-28, and 30 are withdrawn from consideration as directed to a non-elected invention.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-7, 10-18, 29 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants' admitted state of art, and Subramaniam et al (US 6,113,795) and Templeton et al (Langmur, 1999,15, pp 66-76) in view of Panek et al (US 4,143,026) and Colman et al (US 6,384,297) for the reasons of record set forth in paragraph 2 of the Office Action mailed on 8/24/2005.

Response to Arguments

4. Applicants' arguments filed 1/25/2006 have been fully considered but they are not persuasive.

Applicants state that size distribution fractionation is an essential limitation of the invention as claimed, however, this limitation is not suggested or taught by the cited references, either separately or in combination and there is no direction to the skilled person in any of the

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references suggesting that size distribution fractionation would be possible if the reference were combined.

The Examiner respectfully disagrees with this argument. The Examiner admitted that although methods for fractionating gold particles from organic solvents by addition of non-solvent were known in the art (See specification, page 2, lines 32-37 to page 3, lines 1-2), the application of these methods to the fractionation of stabilized, water-soluble nanoparticles such as stabilized, charged, water-soluble tiopronin or coenzyme monolayer-protected gold nanoparticles described in Templeton et al (See specification, page 1, lines 22-25; page 12, lines 29-34) by adding electrolyte such as NaCl (Claims 1, 12, 13) and substantially water-miscible organic solvent such as methanol, ethanol to an aqueous population of gold nanoparticles, was not taught in the art (Claims 1, 14) (See specification, page 3, lines 2-3).

Obviously, **any** methods allowing to gradually *precipitate* the stabilized, charged, water-soluble tiopronin or coenzyme monolayer-protected gold nanoparticles of Templeton et al from their solutions could be used to fractionate the protected gold nanoparticles since it was known in the art that gold particles could be fractionated by gradually precipitating them from their solutions by addition of non-solvent.

Panek et al is a secondary reference which is relied upon to show that dissolved polymers can be precipitated by adding *electrolyte* or by adding *anti-solvent* (See column 1, lines 44-57). It is held that it is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... Obviously, a **combination** of *electrolyte* and *anti-solvent* can be used in Panek et al for precipitating the polymer.

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Colman et al is a secondary reference which is relied upon to show that it is well known in the art that addition of an inorganic salt such as NaCl, KCl, NaBr (See column 5, lines 54-55) to stabilized, charged, water-soluble polymer may force the polymer precipitation through a *salting-out* phenomenon (See column 5, lines 56-67).

Thus, Panek et al and Colman et al clearly suggest that stabilized, charged, water-soluble tiopronin or coenzyme monolayer-protected gold nanoparticles of Templeton et al can be gradually precipitated by addition of *electrolyte* such as NaCl, KCl, NaBr and *anti-solvent*.

Therefore, the stabilized, charged, water-soluble tiopronin or coenzyme monolayer-protected gold nanoparticles of Templeton et al can be fractionated by adding *electrolyte* such as NaCl, KCl, NaBr and *anti-solvent* to their solutions since it was known in the art that gold particles could be fractionated by gradually precipitating them from their solutions.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

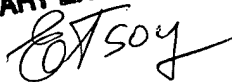
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elena Tsoy whose telephone number is 571-272-1429. The examiner can normally be reached on Monday-Thursday, 9:00AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-142323. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elena Tsoy
Primary Examiner
Art Unit 1762

ELENA TSOY
PRIMARY EXAMINER



February 15, 2006